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### (12) United States Patent

Rasmussen et al.

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# (54) SYSTEM AND METHOD FOR RELIABLY COMMUNICATING THE CONTENT OF A LIVE DATA STREAM

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#### Related U.S. Application Data

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- (51) **Int. Cl. H03M 13/05** (2006.01)

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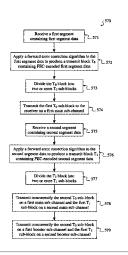
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#### (57) ABSTRACT

A method for communicating the content of a live data stream to a receiver using a plurality of channels comprising two encoder channels used to encode the live data content prior to transmission. Initially a plurality of segments of a live data stream are received, wherein each segment contains segment data. A forward error correction algorithm is applied to each segment's data, thereby producing FECencoded segment data. The FEC-encoded segment data is contained within an FEC-encoded block, resulting in a corresponding plurality of FEC-encoded blocks being generated. Each FEC-encoded block is copied to a sub-channel on both a first encoder channel and a second encoder channel, resulting in a plurality of FEC-encoder blocks residing on the first and second encoder channels. The first and second encoder channels differ in the number of subchannels they contain (interleaving depth), and accordingly the arrangement of the FEC-encoded blocks in the first and second encoder channels are different. A first cross-section of the FEC-encoded segment data contained within the FEC-encoded blocks resident in the first encoder channel is added to a first transmit block T<sub>0</sub>. Similarly, A first crosssection of the FEC-encoded segment data contained within the FEC-encoded blocks resident in the second encoder channel is added to a second transmit block T<sub>1</sub>. The first and second transmit blocks are then communicated to the receiver.

#### 13 Claims, 17 Drawing Sheets



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